RESEARCH NOTES

J. Parasitol., 89(4), 2003, p. 850

Seroprevalence of *Toxoplasma gondii* Antibodies in the Rodent Capybara (*Hidrochoeris hidrochoeris*) From Brazil

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ABSTRACT: Capybaras (*Hidrochoeris hidrochoeris*) are 1 of the largest rodents used for meat in South and Central America. Prevalence of anti–*Toxoplasma gondii* antibodies in 149 feral *H. hidrochoeris* from the state of São Paulo, Brazil, was evaluated using the indirect immunofluorescent antibody test (IFAT) and the modified agglutination test (MAT). Using IFAT, antibodies (>1:16) were found in 104 (69.8%) and with the MAT, antibodies (>1:25) were found in 63 (42.3%) capybaras. This is the first report of prevalence of *T. gondii* antibodies in this host.

Infections by the protozoan *Toxoplasma gondii* are widely prevalent in numerous species of warm-blooded animals (Dubey and Beattie, 1988; Tenter et al., 2000). The objective of the present study was to investigate the prevalence of antibodies to *T. gondii* in capybara (*Hydrochoeris hydrochoeris*) from Brazil.

Capybara is considered the largest rodent in the world. It originated in Latin America and is widely distributed from the north of Panama to Argentina. It is a herbivore with semiaquatic habits (Ojasti, 1991). Capybara meat is consumed by humans in many countries.

Sera were collected by the Secretary of Environmental Resources of the municipality of São Paulo and the Secretary of Health of the state of São Paulo, with a total of 149 wild capybaras from the counties of São Paulo (30), Pirassununga (17), Paulínia (8), Monte Alegre do Sul (32), Campinas (61), and São João da Boa Vista (1).

Blood samples were collected from jugular or brachial veins, and sera were separated and stored at −20 C until they were tested for anti–*T. gondii* antibodies. Indirect immunofluorescent antibody test (IFAT) and the modified agglutination test (MAT) were used with cutoff values of 1:16 and 1:25, respectively. The seropositive samples were tested in 2-fold serial dilutions for both techniques.

For IFAT, tachyzoites of *T. gondii* RH strain were used as antigen, as described by Camargo (1974). Capybara antiserum was prepared in sheep by the Zoonosis Control Center of the city of São Paulo and labeled with fluorescein isothiocyanate, as described by Camargo (1967) and Hudson and Hay (1976), and used in the dilution of 1:400 after standardization. The MAT was performed according to the method of Dubey and Desmonts (1987). Although there is no information on the sensitivity and specificity of MAT for diagnosis of toxoplamosis in capybaras, based on a validation study of MAT in pigs naturally or experimentally infected with *T. gondii* (Dubey, 1997), a MAT titer of 1:25 was considered an indicator of *T. gondii* exposure.

Antibodies to *T. gondii* were found in 104 (69.8%) of the 149 capybaras with IFAT (Table I), and seropositive animals were observed in all counties (21 of the 30 from Sao Paulo, 4 of the 17 from Pirassununga, 5 of the 8 from Paulínia, 25 of the 32 from Monte Alegre do Sul, 48 of the 61 from Campinas, and 1 from São João da Boa Vista). With the MAT, antibodies were found in 42.3% of the carybaras (Table I). Results of this study indicate that capybaras have been exposed to *T. gondii* in nature and may be a potential source of *T. gondii* infections if they are consumed undercooked.

TABLE I. *Toxoplasma gondii* antibodies in capybaras from the State of São Paulo, Brazil.

IFAT		MAT	
Titer	No. of positive sera (%)	Titer	No. of positive sera (%)
16	3 (2.0)	25	21 (14.1)
32	3 (2.0)	50	26 (17.5)
64	1 (0.7)	100	12 (8.1)
128	11 (7.4)	200	2 (1.3)
256	10 (6.7)	400	2 (1.3)
512	23 (15.4)		
1,024	27 (18.1)		
2,048	23 (15.4)		
4,096	2 (1.3)		
8,192	1 (0.7)		
Total	104 (69.8)		63 (42.3)

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